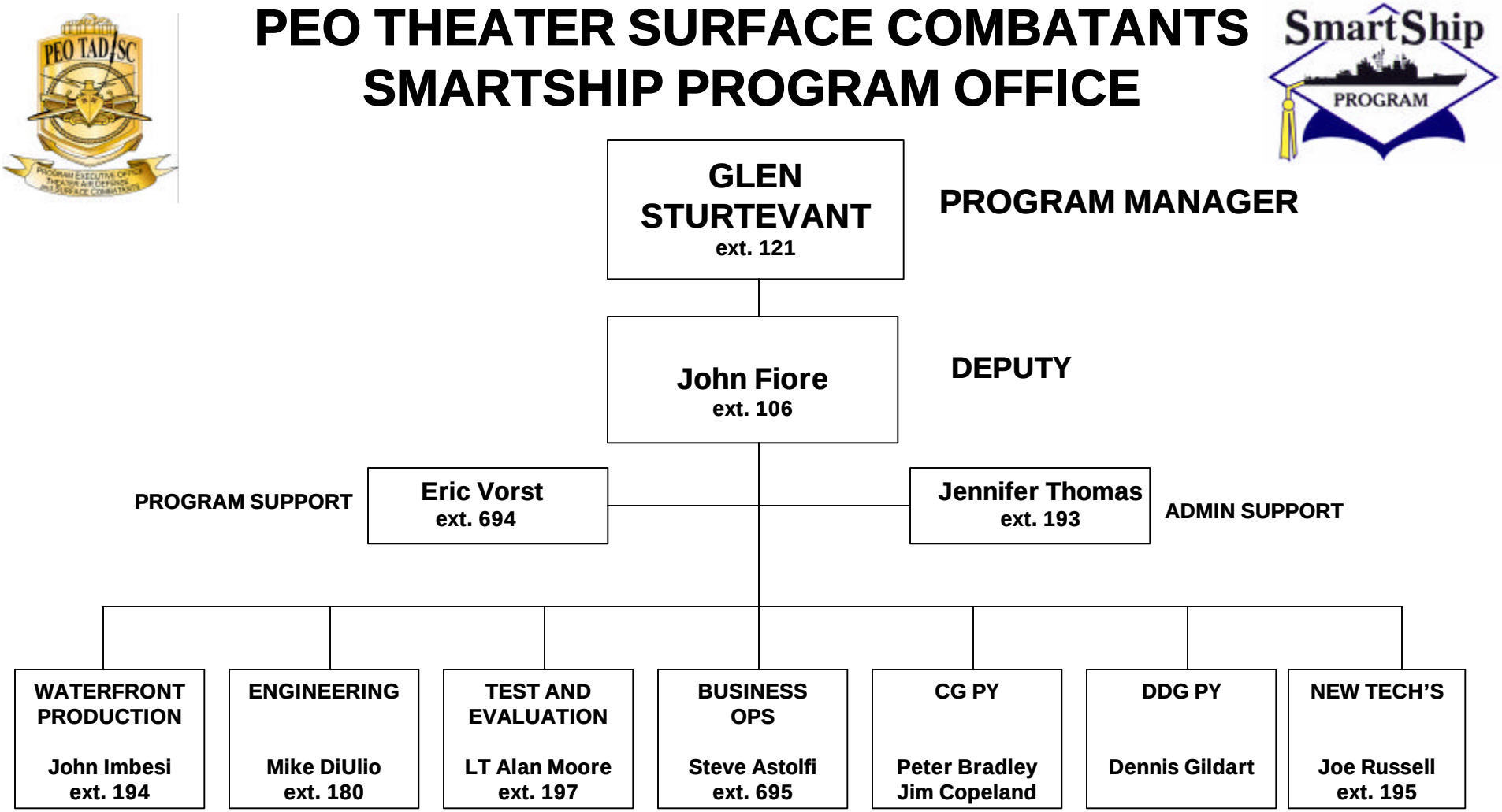
SMART SHIP PROGRAM

Current Overview

September 1998

PEO THEATER SURFACE COMBATANTS
SMARTSHIP PROGRAM OFFICE



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SMART SHIP BACKGROUND

- CNO/COMNAVSEA INITIATIVE
  - **NRAC STUDY 10/95**
  - **REDUCE CREW WORKLOAD**
  - **COTS IMPLEMENTATION**

"WORK SMARTER, NOT HARDER"

- **POLICY & PROCEDURE CHANGES**
- **RELIABILITY CENTERED MAINT.**
- **TECHNOLOGY: INT. SHIP CONTROL**

- EXECUTIVE AGENT → **COMNAVSURFLANT**
  - **DIRECT FLEET INPUT**
  - **DECIDED TO IMPLEMENT ON CG 48**

SMART SHIP
"CORE TECHNOLOGIES"

Integrated Bridge System (IBS): automated piloting, ship's course and track analysis with radar and chart overlay, including collision avoidance.

Integrated Condition Assessment System (ICAS): automated condition-based maintenance recorder for main propulsion and auxiliary equipment; digital information maintained on fiber optic LAN.

Damage Control Quarters (DCQ): automated damage control management system providing information and communication throughout the ship on the fiber optic LAN.

Machinery Control System (MCS): automated digital propulsion and electrical plant control using signals passed via the fiber optic LAN.

Fuel Control System (FCS): automated digital control of ship's fuel transfer system.

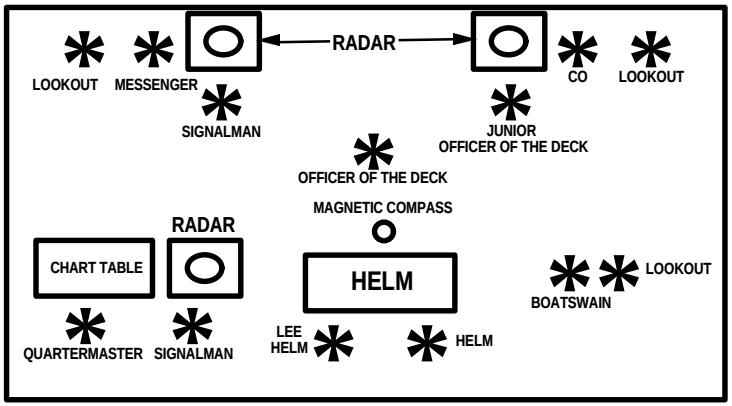
Wireless Internal Communication System (WICS): individual ship's company personal communications or near the ship.

Fiber Optic Ship Wide Area Network (FO SWAN): fiber optic LAN hosting the above listed core technologies (vice the WICS) utilizing asynchronous transfer mode (ATM) and being IT 21 compliant

BRIDGE WATCHSTANDING REDUCTION

FROM

1960s TECHNOLOGY



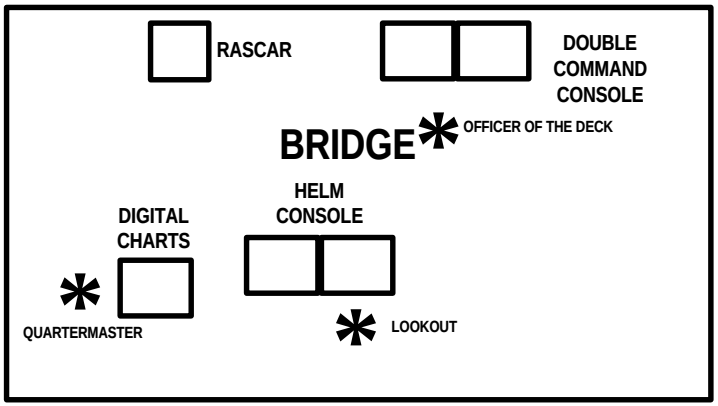
CIC

NO SHIP CONTROL CAPABILITY FROM COMBAT

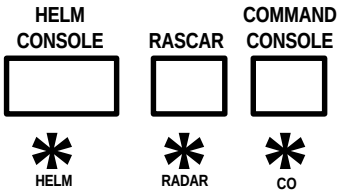
- 150+ CARDS
- 200 LIGHT BULBS
- 60+ PREVENTIVE MAINTENANCE ACTIONS
- VARIED LOGISTICS RQMTS
- 12 PERSONNEL ON BRIDGE WATCH

TO

1980s/1990s TECHNOLOGY



CIC



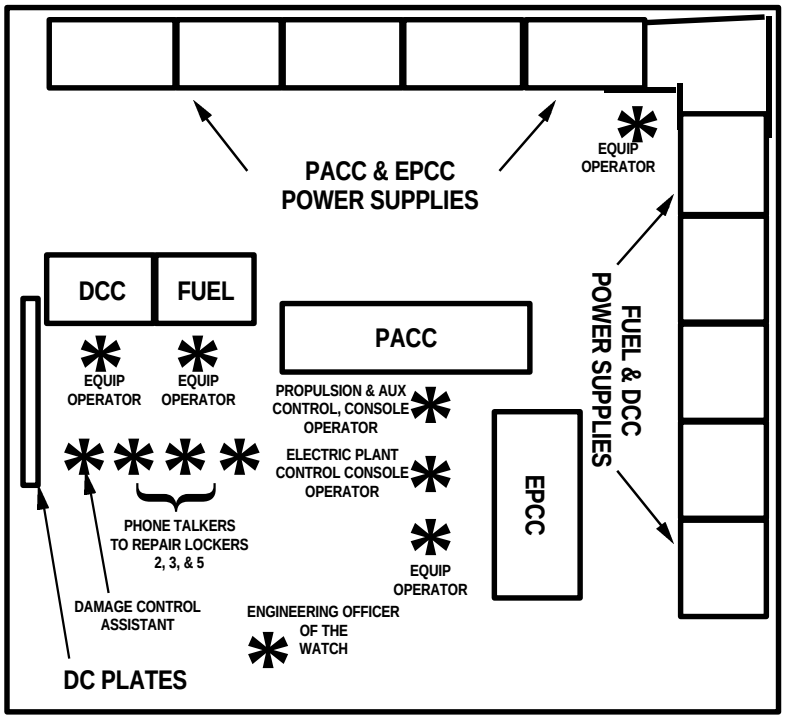
- LESS THAN 50 CARDS; NO LIGHT BULBS
- LESS THAN 10 PREVENTIVE MAINTENANCE ACTIONS
- UNIFORM LOGISTICS RQMTS
- CO DRIVES SHIP FROM COMBAT
- 3 PERSONNEL ON BRIDGE WATCH

* GENERAL QUARTERS WATCHSTATION

ENGINEERING WATCHSTANDING REDUCTION

FROM

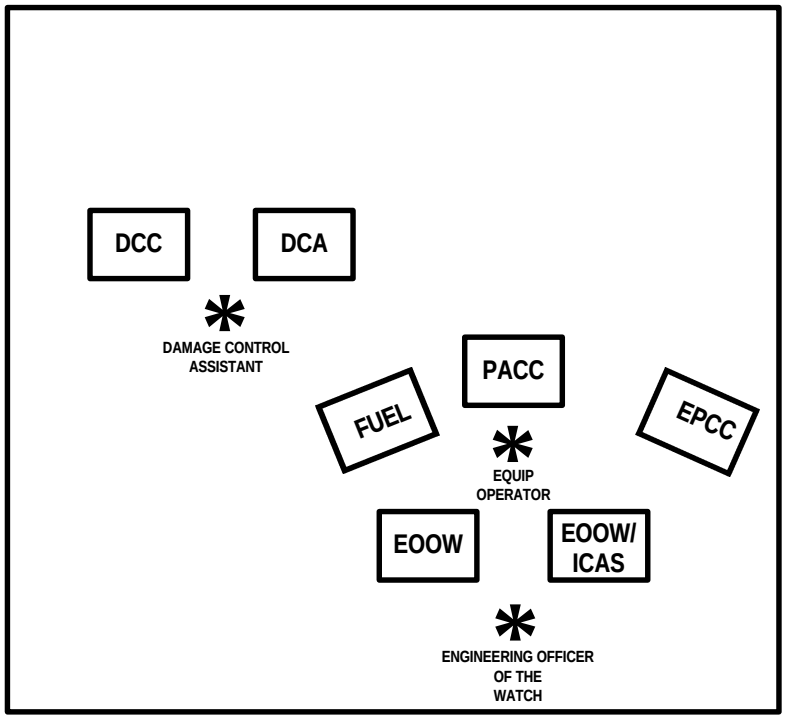
1960s TECHNOLOGY



- 1500+ CARDS
- 2000 LIGHT BULBS
- 200 PREVENTIVE MAINTENANCE ACTIONS
- VARIED LOGISTICS RQMTS
- 11 PERSONNEL ON WATCH

TO

1980s/1990s TECHNOLOGY

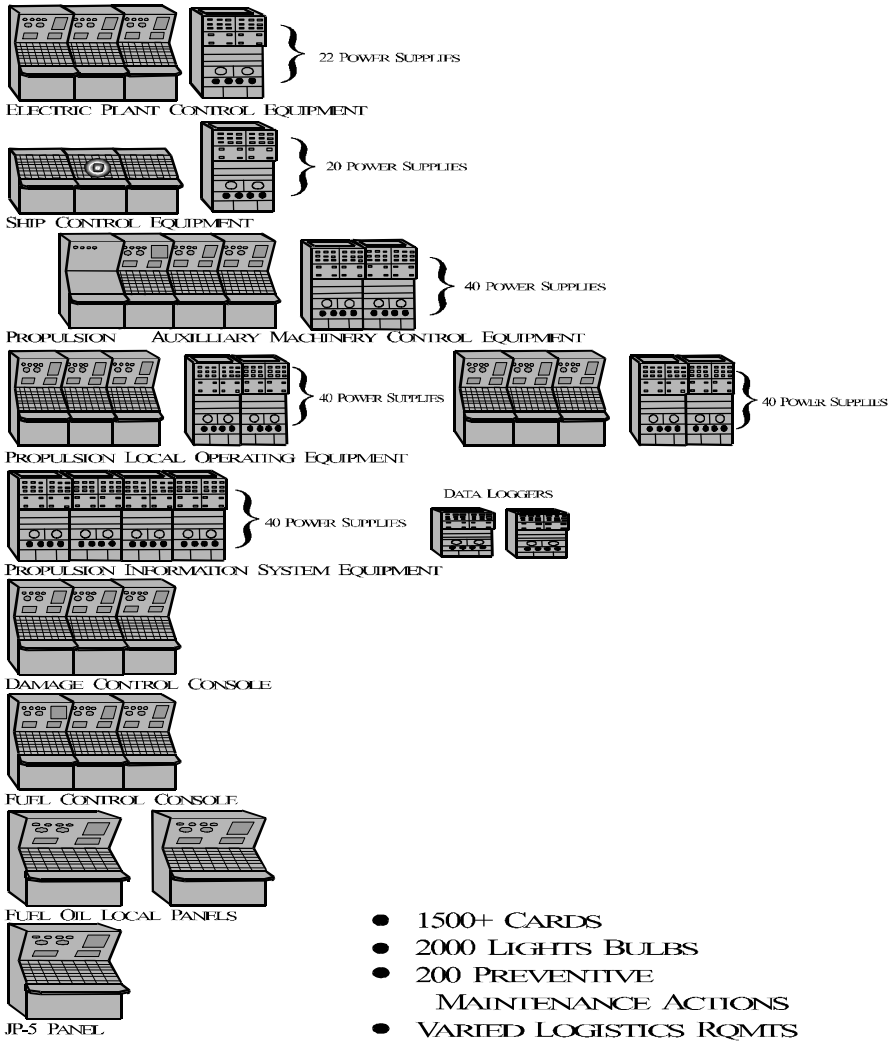


- 7 CONSOLES
- UNIFORM LOGISTICS RQMTS
- LITTLE PREVENTIVE MAINTENANCE
- 4 PERSONNEL ON WATCH

* GENERAL QUARTERS WATCHSTATION

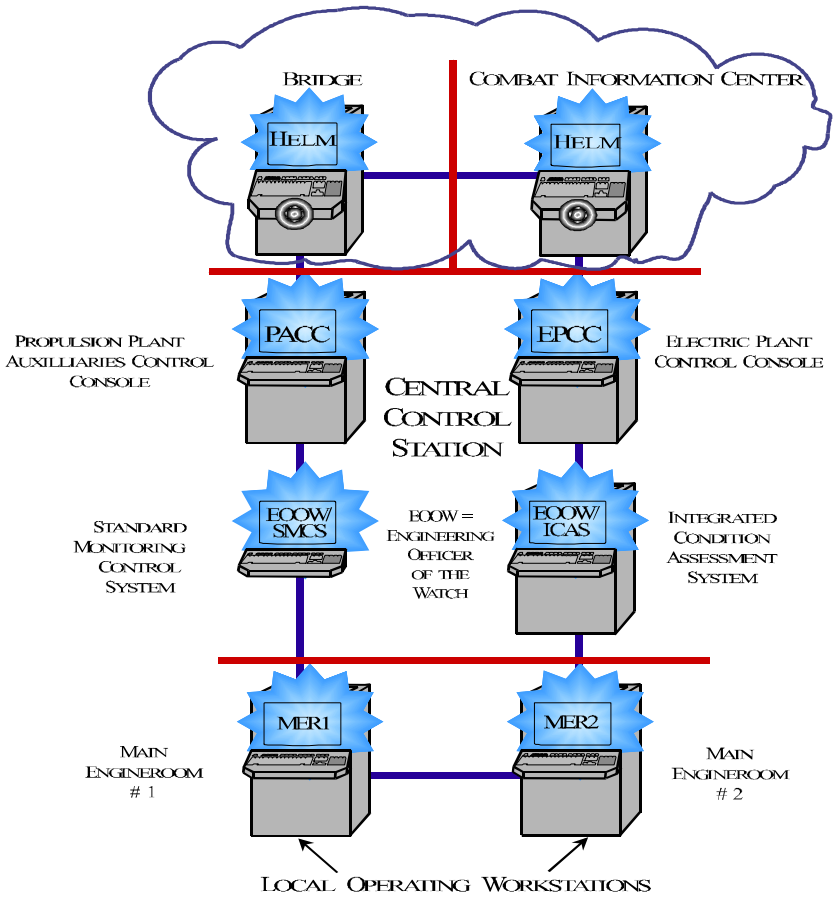
MACHINERY CONTROL EQUIPMENT REDUCTION

From 1960s



- 1500+ Cards
- 2000 Lights Bulbs
- 200 Preventive Maintenance Actions
- Varied Logistics Rqmts

To 1990s



- 7 Consoles
- Little Preventive Maintenance
- Uniform Logistics Rqmts

SMART SHIP RESULTS

47 INSTALLED TECHNOLOGIES
7 "CORE TECHS"

+

POLICY & PROCEDURE CHANGES
CORE / FLEX

+

RELIABILITY CENTERED MAINTENANCE

WORKLOAD REDUCTION

CREW MANNING REDUCTION
2 OFF / 44 ENL

CALCULATED SAVINGS

EXPANSION OF "CORE TECH" TO THE FLEET

EVALUATED BY OPTEVFOR/INSURV/NAS

ACQUISITION REFORM CHALLENGES

Procurement **COTS/NDI** Platform Management

ENGINEERING

Survivability
Reliability / ILS

SMART SHIP 10/96

Conceptual Design

PRODUCT IMPROVEMENT CYCLE

ACQUISITION ISSUES

- **INTEG. ENG. VS. DEVELOPMENT**
- **SSA FUNCTIONS**
- **OBSOLESCENCE/ TECH REFRESH**
- **GPR/SW REHOST**

FUTURE INSTALLS:
CG CONVERSION
DDG BACKFIT

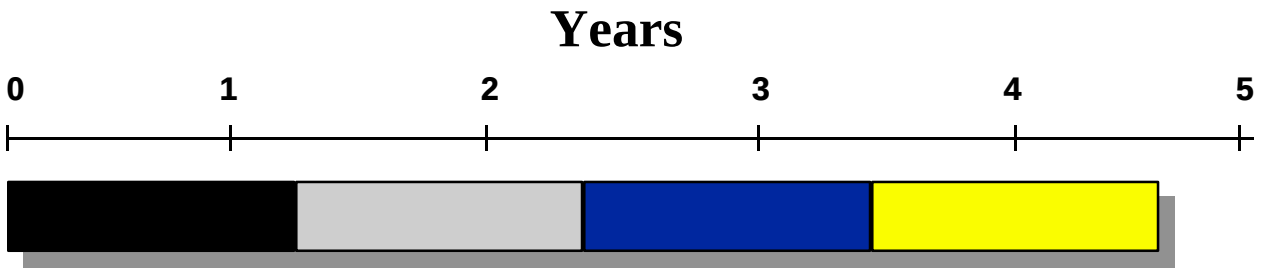
Identify & Manage Risks
AEGIS is primary SC weapon system

E VALUATION

LIFECYCLE COSTS TRADEOFFS ASSOCIATED WITH ACQUISITION REFORM ISSUES

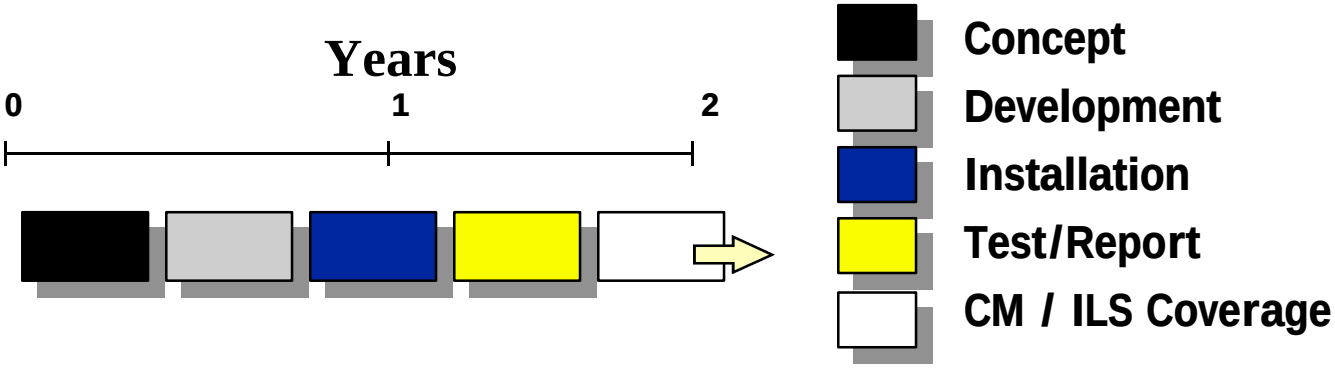
INNOVATION → CONFIG. MGMNT & ACQUISITION ISSUES

SECNAV 5000



4.5-year cycle is not adequate to keep up with tech. changes

SMARTSHIP PROCESS



The innovative process (received the Vice President Gore *Hammer Award*) has allowed the Smart Ship Project Team to reduce a 4.5-year cycle to 18 months + CM / ILS coverage

LIFECYCLE / TOTAL OPERATING COST ISSUES

- CONFIGURATION MANAGEMENT
  - **DIRECT VENDOR DELIVERY, COST-BENEFIT ANALYSIS**
  - **CONTRACTOR INVOLVEMENT**
- TRAINING
  - **COMPUTER BASED TRAINING**
  - **INTERACTIVE COURSEWARE**
- LAND BASED TEST FACILITIES
  - **SOFTWARE MODELING**

SAVE $$$ DURING ACQUISITION BY UTILIZING COTS/NDI PROCESSES
DEVELOP INTELLIGENT LIFECYCLE PLAN TO TAKE ADVANTAGE

CULTURAL ISSUES

- ACCEPTANCE OF TECHNOLOGY
  - **SHIPBOARD & ASHORE**
- VERIFICATION OF RELIABILITY & SURVIVABILITY
  - **ENVIRONMENTAL (SHOCK)**
- WILLINGNESS TO CHANGE SHIPBOARD POLICY & PROCEDURES
- NAVY SUPPORT INFRASTRUCTURE CHANGES
  - **VENDOR DELIVERY RESPONSIBILITIES**
  - **CONFIGURATION CHANGE MANAGEMENT**
  - **RELIANCE UPON COMMERCIAL TECH & SUPPORT**
- **INCENTIVIZE INITIATIVE**

THE WAY AHEAD

- CORE TECHNOLOGY INTO THE FLEET:
  - **BASELINE 1 CGs.....FY 98-99**
  - **BASELINE 2/3/4 CGs.....FY 99-05**
  - **DDG 51 BACKFIT.....FY 00** ➡
- CREW / MAINTENANCE REDUCTION INITIATIVE(S)
- REVITALIZE TECHNOLOGY PUSH IN **FY00**
- SHIPBOARD POLICY & PROCEDURE REVISION(S) / IMPLEMENTATION
  - **CNSL: DESRON 18 (*"Smart Squadron"*)**